



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Charles D. Gavrilovich

Serial No.: 09/401,584

Filed: September 22, 1999

For: **MOBILE COMMUNICATION SYSTEM
WITH MOVING BASE STATION**

Examiner: Joy K. Contee

Group No.: 2681

Docket No. Gavrilovich P1US2

RECEIVED

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CERTIFICATION UNDER 37 CFR § 1.8

Technology Center 2600

I hereby certify that the documents referred to as enclosed herein are being deposited with the United States Postal Service as first class mail on this date June 30, 2004, in an envelope addressed to: Commissioner for Patents P.O. Box 1450 Alexandria, VA 22313-1450

Date June 30, 2004 Signature [Signature]
By: Charles D. Gavrilovich, Jr.

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Sir:

APPELLANT'S APPEAL BRIEF UNDER 37 CFR §1.192

In accordance with the Notice of Appeal to the Board of Patent Appeals and Interferences mailed May 3, 2004 and received on May 6, 2004, in the above-identified U.S. Patent application, Appellant hereby presents the Appellant's Appeal Brief under 37 CFR §1.192 (b). The APPELLANT'S APPEAL BRIEF is submitted in triplicate along with three copies of each reference discussed, three copies of the Final Office Action and three copies of the Advisory Action as well as the appropriate fees.

Void Date: 07/07/2004 TRESHAW1
07/07/2004 TRESHAW1 00000065 09401584
01 FC:2401 -165.00 OP
01 FC:2401 165.00 OP

Appeal_06-30-04

07/07/2004 TRESHAW1 00000065 09401584 165.00 OP
01 FC:2402

REAL PARTY IN INTEREST

Carucel Investments Limited Partnership of Naperville, Illinois, is the real party in interest as the assignee of the above-identified application.

RELATED APPEALS AND INTERFERENCES

No other appeals or interferences are known which will be affected by this appeal.

STATUS OF CLAIMS

The application under appeal includes pending claims 30-36, 49-82, 89-111 and 113-123. In the Advisory Action, the Examiner has provided the following status of the claims. Claims 63-82 and 97-102 are allowed. Claims 50-53, 90-92, 94-96, 104-106, 114-117, and 120-123 are objected to. Claims 30-36-49, 54-62, 83-89, 93, 103, 107, 113, 118 and 119 are rejected.

Claims 30-36, 49, 54, 58, 61, 62, 89, 93, 103, 113, 118, and 119 stand rejected under 35 USC §102(b) as being anticipated by Yokoi et al. (US 5,282,239).

Claims 55 and 56 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Yokoi in view of Charas et al (5,404,570).

Claim 57 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Yokoi in view of Ishikawa et al. (US 5,969,614).

Claims 59-60 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Yokoi in view of Barkats (US 5,615,407).

STATUS OF AMENDMENTS

In the Advisory Action mailed April 05, 2004, the Examiner has indicated that the latest amendments submitted in the "Response After Final Rejection" mailed January 10, 2003 have been entered.

SUMMARY OF THE INVENTION

The present invention is directed to methods and devices for providing communication services to moving mobile units such as telephones, radio modems, or other types of radios. In the exemplary embodiment discussed in the specification, a movable base station travels along a predetermined path and in accordance with an anticipated motion of one or more mobile units. The mobile units may be located within vehicles traveling along a roadway and the movable

base stations may be guided along a rail or other conveying device next to the roadway. By receiving and/or transmitting signals while moving next to the roadway, the movable base station provides a moving communication cell to one or more mobile units traveling on the roadway. In the exemplary embodiment, the movable base stations also communicate with fixed ports that are distributed along the predetermined path and connected to other communication infrastructure. The movable base station, therefore, exchanges signals with the fixed ports that correspond to the signals exchanged with the mobile units.

In accordance with certain features of the exemplary embodiment, the speed of the movable base stations may be adjusted to more closely follow the general flow of roadway traffic and the motion of one or more mobile units. In some embodiments, the movable base stations maintain a constant speed that is selected based on the expected speed of mobile units.

In some embodiments, the movable base stations are located within designated vehicles traveling along the roadway in the same general direction as the mobile units. In other embodiments, the movable base stations are guided along railway that follows the contour of the roadway. The movable base stations, therefore, are moved along path that follows the anticipated motion of the mobile units. The actual motion of the mobile unit, however, is independent to the motion of the movable base station. For example, a vehicle containing a mobile unit may speed up, slow down, turn, or otherwise move independently to the motion of the movable base station.

The exemplary embodiments overcome the problems of conventional communication systems where, due to tradeoffs between mobile unit speed, base station capacity, and available bandwidth to a user, truly broadband communication links are not available to mobile units traveling at speeds greater than 30 mile per hour. Typical methods for providing more bandwidth to a user require smaller communication cells to take advantage of frequency reuse. As the size of the cells is reduced, however, the mobile unit tends to cross cell boundaries more often, requiring a large number of handoffs to the point that the calls will be dropped if the mobile units are traveling at high vehicular speeds. As the speed of the user increases, the processing and resources required to complete handoffs in a small cell system becomes prohibitive to communications. The exemplary embodiments of the invention, however, overcome this problem by providing a relatively smaller communication cell that tracks the expected motion of the mobile unit. The numbers of handoffs in the exemplary embodiments are minimized since the mobile units stay within moving cells. Among other benefits, therefore, the

present invention allows the exploitation of the advantages of a small cell architecture and frequency reuse with minimal consequences.

ISSUES

Appellant wishes the Board of Patent Appeals and Interferences to review the following issues on appeal:

1) Whether the rejection of any of claims 30-36, 49, 54, 58, 61, 62, 89, 93, 103, 113, 118, and 119 under 35 U.S.C. §102(b) as being anticipated by Yokoi et al. (US 5,282,239) was proper.

2) Whether the rejection of any of claims 55 and 56 under 35 U.S.C. §103(a) as being unpatentable over Yokoi in view of Charas et al (5,404,570) was proper.

3) Whether the rejection of any of claims 59-60 under 35 U.S.C. §103(a) as being unpatentable over Yokoi in view of Barkats (US 5,615,407) was proper.

GROUPING OF CLAIMS

It is applicant's position that claims 30-36, 49, 54, 61, 62, 89, 93, 103, and 113, 118, and 119 (Group1) stand or fall together, claims 55-57 (Group 2) stand and fall together, claims 59-60 (Group 3) stand or fall together and that claim 58 is separately patentable.

CITED REFERENCES

Yokoi

Yokoi et al. (US 5,282,239) ("Yokoi") describes a cordless telephone system where portable coreless telephones 2 within an elevator car 1 communicate with a moving-conveyance base station 10 mounted on the elevator car 1. The moving-conveyance base station 10 is coupled to a central switch 5 by wires running parallel to the elevator cable that supports the elevator 1.

Charas

Charas et al. (US 5,404,570) ("Charas") describes a repeater system 100 that provides communications links to mobile units 102 in a closed environment 104, such as a tunnel, that is substantially closed off to high frequency communication between the mobile unit 102 and a

Base Transceiver Station (BTS) 106. The BTS 106 is connected to a first two-way frequency converter 108 that provides an interface between the high frequency signals used by the BTS 106 and low frequency signals that are transmitted and received in the tunnel 104 through a radiating transmission cable 110. A second two-way frequency converter 116 mounted on a vehicle 114, such a train car, provides an interface between the low frequency signals exchanged with the radiating transmission cable 110 and high frequency signals used by the mobile unit 102 within the vehicle 114. Accordingly, the frequency band used for communicating between the second frequency converter 116 and the BTS 104 (through the first frequency converter 108) is different than the frequency band used for communicating between the second frequency converter 116 and the mobile unit 102. Charas teaches to use low frequency communications between the second frequency converter 116 and the cable 110 where the "low frequency" is "in the range of 30 to 300 megahertz." Column 3, lines 17-18. Further, Charas points out that "it should be readily apparent that a typical mobile unit is not capable of operating in this frequency range, and cannot directly take advantage of such a signal." (Column 3, lines 61-65).

Barkats

Barkats (US 5,615,407) ("Barkats") describes a geostationary satellite system where signals are transmitted "laterally" between geostationary satellites 2 and 3 at one frequency and other signals are transmitted to earth stations 1 at another frequency. Barkats explicitly suggests to use frequencies between 30 GHz and 50 GHz for the lateral transmissions between satellites 2 and 3.

ARGUMENT

Applicant respectfully submits that claims 30-36, 49, 54-62, 83-89, 93, 103, 107, 113, 118 and 119 are allowable over the art cited by the Examiner. Each of the issues presented for review are addressed below.

102(b) Rejection - Yokoi

Claims 30-36, 49, 54, 58, 61, 62, 89, 93, 103, 113, 118, and 119 stand rejected under 35 U.S.C. 102(b) as being anticipated by Yokoi. Applicant respectfully submits that these claims are allowable over the art cited. Claims 30-36, 49, 54, 61, 62, 89, 93, 103, 113, 118, and 119 (Group 1) are addressed immediately below followed by arguments regarding claim 58.

Applicants respectfully submit that the claims as presented are allowable over the art cited by the examiner. A rejection of a claim for anticipation requires that a single anticipating reference include, within its four corners, all of the elements, limitations, and relationships therebetween of the rejected claim. "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). Applicants respectfully submit that each and every element recited in any one of the claims of Group 1 is not found in Yokoi.

Each of the claims in Group 1 refer either to a receiver, a transmitter, a movable base station, or a moving communication cell that "has a motion relative to Earth along a predetermined path and in accordance with an anticipated motion of the mobile unit, wherein an actual motion of the mobile unit is independent of the motion of the" receiver, transmitter, movable base station or moving communication cell. Referring to claim 30 as a representative claim of the claims of Group 1, claim 30 recites a "transmitter adapted to transmit a signal to a mobile unit while the transmitter has a motion relative to Earth along a predetermined path and in accordance with an anticipated motion of the mobile unit, wherein an actual motion of the mobile unit is independent of the motion of the transmitter." Applicant respectfully submits that Yokoi does not describe all of the limitations of this claim. For example, Yokoi does not disclose that the "actual motion of a mobile unit is independent of the motion of the transmitter". In Yokoi, the motion of a portable cordless phone depends on the motion of the moving-conveyance base station since the moving-conveyance base station is attached to the elevator that is carrying the portable cordless phone. Although the portable cordless phone may be moved within the elevator relative to the motion of the moving-conveyance base station, the motion of the portable cordless phone is dependent on the motion of the elevator and, therefore, also dependent on the motion of the moving-conveyance base station. **If the elevator moves, at least a component of the motion of the portable cordless phone will be due to the motion of the elevator.** If the user of the portable cordless phone is moving within the elevator and the elevator is going down, for example, the motion of the portable cordless phone will also have a motion with a downward component. Accordingly, Yokoi does not show that an actual motion of a mobile unit is "independent" of the motion of a transmitter as claimed.

In addressing applicant's response to the Final Rejection, the Examiner maintained that the "actual motion" of the mobile unit is independent of the motion of the transmitter and stated that "the transmitter does not control the 'actual motion' of the mobile unit, e.g., within the elevator the mobile unit is free to move." See Advisory Action page 2 (Continuation Sheet). Applicant has never maintained that the transmitter in Yokoi "controls" the motion of the mobile unit. Applicant respectfully submits that, in Yokoi, the motion of the cordless portable phone is not **independent** to the motion of the elevator since any motion of the elevator is conveyed to the cordless portable phone. The fact that the user may move within the elevator, does not make the "actual motion" of the portable phone independent to the motion of the elevator. As explained above, if the elevator moves, the cordless portable phone also moves.

Therefore, Yokoi does not show a transmitter, receiver, movable base station, or moving communication cell that has "a motion relative to Earth along a predetermined path and in accordance with an anticipated motion of the mobile unit, wherein an actual motion of the mobile unit is independent of the motion of the transmitter." Accordingly, applicant respectfully submits that all of the limitations of each of the claims in Group 1 are not found in Yokoi and that the rejection under 35 U.S.C. §102(b) was not proper.

Rejection of claim 58 under 35 U.S.C. §102(b) – Yokoi

Claim 58 depends from claim 55 that depends from claim 54 which applicant respectfully submits is allowable. Accordingly, claim 58 is allowable as depending from an allowable base claim if claim 54 is found to be allowable. Claim 58 recites the additional limitation that the frequency band used for the first and second communication links is a millimeter wave frequency band. In rejecting claim 58 under 35 U.S.C §102(b), the Examiner cites to column 3, lines 61-63, column 4, lines 32-33 of Yokoi. (See Office Action mailed November 12, 2003, page 7, lines 13-14). Careful review of this section in Yokoi reveals no discussion of millimeter waves or any other frequencies. Nowhere, in Yokoi is a discussion of millimeter wave frequency bands. Accordingly, applicant respectfully submits that all of the limitations of claim 58 are not found in Yokoi and the rejection under 35 U.S.C. §102(b) was improper.

Rejection under 35 U.S.C. §103(a) - Yokoi in view of Charas

Claims 55, 56, 75, 76, 78, 81, and 82 were rejected in the Final Rejection mailed November 12, 2003. In the Advisory Action, the Examiner indicated that claims 75-82 are allowed. Accordingly, claims 55 and 56 stand rejected under 35 U.S.C. 103(a) as being

unpatentable over Yokoi in view of Charas. Further, claim 57 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Yokoi in view of Ishikawa et al. (US 5,969,614).

To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). Applicant respectfully submits that neither Yokoi, nor Charas, nor a combination of the two, teaches every element of either claim 55 or claim 56.

Claim 55 recites a movable base station “wherein the first communication link and the second communication are established within a frequency band having a lower limit greater than 300 megahertz”. Nowhere in either reference is there a suggestion to use a single frequency band having a lower limit greater than 300 megahertz for a first communication link and for a second communication link where the first communication link is between the movable base station and the mobile unit and the second communication link is between the movable base station and the fixed port.

The Examiner admits that Yokoi does not teach that the first communication link and second communication link are established within a frequency band having a lower limit greater than 300 MHz. (See Final Office Action mailed November 12, 2003, Page 8, Item 8, lines 1-2).

Applicant submits that Charas does not teach or suggest a first communication link and a second communication that are established within a frequency band having a lower limit greater than 300 megahertz. On the contrary, Charas teaches away from the claimed invention by specifically describing a system where communications between the mobile base station and a cable be performed at a “low frequency . . . in the range of 30 to 300 megahertz.” (column 3, lines 17-18). (Also see column 3, lines 61-65). Charas describes a system that overcomes the problems encountered in communicating with mobile units in a closed environment and teaches to convert the signals to low frequency signals that can propagate through the closed environment. In Charas, the frequency band used for communicating between the mobile units and the moving two-way frequency converter is different than the frequency band used for communicating between the moving two-way frequency converter and the base station. Therefore, Charas does not teach to establish a second communication link between the movable base station and the fixed port “within a frequency band having a lower limit greater than or equal to 300 megahertz” as recited in claim 55. The signals are transmitted at 200 MHz

to the moving two-way frequency converter, converted to 1500 megahertz and transmitted to the mobile units. (See column 4 lines 32-41). Applicant respectfully submits that neither Yokoi, nor Charas, nor a combination of the two, teach or suggest a movable base station “wherein the first communication link and the second communication are established within a frequency band having a lower limit greater than 300 megahertz” and that claim 55 is allowable.

Regarding claim 56, applicant respectfully submits neither Yokoi, nor Charas, nor a combination of the two, teaches or suggests a frequency band having a lower limit of 300 megahertz. For support that this limitation is shown in Charas, the Examiner cites to column 3, lines 61-63. This section states:

“Propagation of the signal within the second, closed environment can be accomplished by propagating a low radio frequency signal, preferably in the range 30-300 MHz, through either a coaxial or a bifilar conductor located within the closed environment.”

In Charas, therefore, 300 MHz is an upper limit, not a lower limit, of a frequency band used for communication with the stationary frequency converter. Accordingly, applicant respectfully submits that neither Charas, nor Yokoi, nor a combination of the two, teach or suggest a movable base station in accordance with claim 56, wherein “the frequency band has a lower limit of 300 megahertz” and that claim 56 is allowable.

Regarding claim 57, this claim depends from claim 55, which applicant submits is allowable. Accordingly, applicant respectfully submits that claim 57 is allowable as depending from an allowable base claim.

Rejection under 35 U.S.C. §103(a) - Yokoi in view of Barkats

In the Final Office Action, the Examiner rejected claims 59, 60, 79 and 80 under 35 U.S.C. §103(a) as unpatentable over Yokoi in view of Barkats. In the Advisory Action the Examiner has indicated that claims 63-82 and 97-102 are allowed. Accordingly, claims 59 and 60 stand rejected under 35 U.S.C. §103(a).

Regarding claims 59 and 60, applicant respectfully submits that neither Yokoi, nor Barkats, nor a combination, of the two teach or suggest every element of each of these claims. As admitted by the Examiner, Yokoi does not teach or suggest the use of frequency spectrum comprising a frequency spectrum from 50 gigahertz to 70 gigahertz. (See Final Office Action

mailed November 12, 2003, Page 10, lines 12-14). Barkats teaches the use of the frequency band between 30 GHZ to 50 GHZ and does not teach or suggest using a frequency spectrum from 50 gigahertz to 70 gigahertz. The Examiner stated that "[i]nherently a greater range would be available, e.g. 50 GHZ to 70GHZ." Applicant submits that the frequency spectrum from 50 gigahertz to 70 gigahertz is not a greater range of the frequency band from 30 GHZ to 50 GHZ. The frequency spectrum from 50 gigahertz to 70 gigahertz includes the frequencies from 50 GHZ to 70 GHZ and is a distinct, non-overlapping, frequency spectrum as compared to the frequency band from 30 GHZ to 50 GHZ.

Therefore, neither Barkats, nor Yokoi, nor a combination of the two teach or suggest using the frequency spectrum from 50 to 70 gigahertz. Applicant respectfully submits that the rejection of claims 59 and 60 was improper.

Conclusion

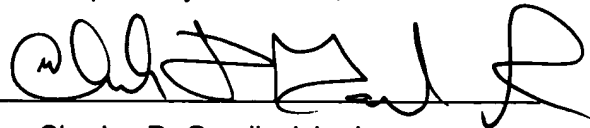
Claims 30-36, 49-82, 89-111 and 113-123 are now pending in the application. Applicant respectfully submits that the pending-claims are allowable and that the case is in a condition for allowance.

Date:

June 30, 2004

Respectfully submitted,

By:



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APPENDIX

30. A transmitter adapted to transmit a signal to a mobile unit while the transmitter has a motion relative to Earth along a predetermined path and in accordance with an anticipated motion of the mobile unit, wherein an actual motion of the mobile unit is independent of the motion of the transmitter.

31. A transmitter in accordance with claim 30 wherein the predetermined path has a contour corresponding to a roadway contour and the anticipated motion of the mobile unit is on the roadway.

32. A transmitter in accordance with claim 31, wherein the transmitter is further adapted to travel on a conveyor device along the predetermined path.

33. A transmitter in accordance with claim 32, wherein the signal corresponds to a received signal received from a fixed radio port at a receiver communicatively coupled to the transmitter.

34. A receiver adapted to receive a signal from a mobile unit while the receiver has a motion relative to Earth along a predetermined path and in accordance with an anticipated motion of the mobile unit, wherein an actual motion of the mobile unit is independent of the motion of the receiver.

35. A receiver in accordance with claim 34 wherein the predetermined path has a contour corresponding to a roadway contour and the anticipated motion of the mobile unit is on the roadway.

36. A receiver in accordance with claim 35, wherein the receiver is further adapted to travel on a conveyor device along the predetermined path.

49. A movable base station adapted to establish a communication link between a fixed port and mobile unit while the movable base station has a motion relative to Earth along a predetermined path and in accordance with an anticipated motion of the mobile unit, wherein an actual motion of the mobile unit is independent of the motion of the movable base station.

54. A movable base station adapted to have a motion relative to a fixed port along a predetermined path and in accordance with an anticipated motion of a mobile unit, comprising:
a first radio interface adapted to establish a first communication link between the movable base station and the mobile unit; and
a second radio interface adapted to establish a second communication link between the movable base station and the fixed port, wherein an actual motion of the mobile unit is independent of the motion of the movable base station.

55. A movable base station in accordance with claim 54, wherein the first communication link and the second communication are established within a frequency band having a lower limit greater than 300 megahertz.

56. A movable base station in accordance with claim 55, wherein the frequency band has a lower limit of 300 megahertz.

57. A movable base station in accordance with claim 55, wherein the frequency band is an optical frequency band.

58. A movable base station in accordance with claim 55, wherein the frequency band is a millimeter wave frequency band.

59. A movable base station in accordance with claim 58, wherein the frequency band comprises a frequency spectrum from 50 gigahertz to 70 gigahertz.

60. A movable base station in accordance with claim 58, wherein the frequency band is an oxygen absorption frequency band.

61. A movable base station in accordance with claim 54, wherein the predetermined path has a contour corresponding to a roadway contour and the anticipated motion of the mobile unit is on the roadway.

62. A movable base station in accordance with claim 61, wherein the movable base station is further adapted to travel on a conveyor device along the predetermined path.

89. A method of transmitting a signal to a mobile unit having an anticipated motion relative to Earth, the method comprising the steps of:

controlling a motion of a transmitter along a predetermined path in accordance with the anticipated motion of the mobile unit, wherein the motion of the mobile unit is independent of the motion of the transmitter; and

transmitting the signal to the mobile unit.

93. A method of receiving a signal transmitted from a mobile unit having an anticipated motion relative to Earth, the method comprising the steps of:

controlling a motion of a receiver along a predetermined path in accordance with the anticipated motion of the mobile unit, wherein the motion of the mobile unit is independent of the motion of the receiver, and
receiving the signal at the receiver.

103. A method of providing a communication connection between a communication network and a plurality of mobile units having a motion relative to a plurality of fixed ports, wherein the plurality of fixed ports are communicatively coupled to the communication network, the method comprising the steps of:

establishing a first communication link between the plurality of mobile units and a first fixed port of the plurality of fixed ports through a movable base station having a motion in accordance with the motion of the mobile units; and

simultaneously handing off the plurality of mobile units to a second fixed port of the plurality fixed ports.

113. A communication system configured to provide a moving communication cell to a mobile unit while the moving communication cell has a motion relative to Earth along a predetermined path and in accordance with an anticipated motion of the mobile unit, wherein an actual motion of the mobile unit is independent of the motion of the moving communication cell.

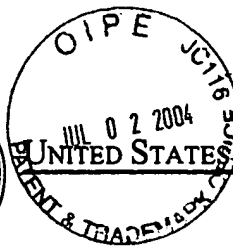
118. A communication system in accordance with claim 113, the communication system comprising:

a moving base station configured to exchange mobile unit signals with a plurality of mobile units within a moving geographical area defined by the moving communication cell;
and

a plurality of fixed ports configured to exchange fixed port signals with the moving base station, the fixed port signals corresponding to the mobile units signals.

119. A method of providing communication services to a mobile unit, the method comprising:

providing a moving communication cell to a mobile unit while the moving communication cell has a motion relative to Earth along a predetermined path and in accordance with an anticipated motion of the mobile unit, wherein an actual motion of the mobile unit is independent of the motion of the cell.



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/401,584	09/22/1999	CHARLES D. GAVRILOVICH	GAVRILOVICH-	4845

7590 04/05/2004
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EXAMINER

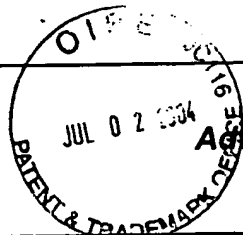
CONTEE, JOY KIMBERLY

ART UNIT PAPER NUMBER

2686

DATE MAILED: 04/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.



Advisory Action

Application No.

09/401,584

Applicant(s)

Gavrilovich

Examiner

Joy K Contee

Art Unit

2686

--The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

THE REPLY FILED 13 November 2003 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE. Therefore, further action by the applicant is required to avoid abandonment of this application. A proper reply to a final rejection under 37 CFR 1.113 may only be either: (1) a timely filed amendment which places the application in condition for allowance; (2) a timely filed Notice of Appeal (with appeal fee); or (3) a timely filed Request for Continued Examination (RCE) in compliance with 37 CFR 1.114.

PERIOD FOR REPLY [check either a) or b)]

- a) ☐ The period for reply expires _____ months from the mailing date of the final rejection.
- b) ☒ The period for reply expires on: (1) the mailing date of this Advisory Action, or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection. ONLY CHECK THIS BOX WHEN THE FIRST REPLY WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

1. ☐ A Notice of Appeal was filed on _____. Appellant's Brief must be filed within the period set forth in 37 CFR 1.192(a), or any extension thereof (37 CFR 1.191(d)), to avoid dismissal of the appeal.
2. ☐ The proposed amendment(s) will not be entered because:
- (a) ☐ they raise new issues that would require further consideration and/or search (see NOTE below);
 - (b) ☐ they raise the issue of new matter (see Note below);
 - (c) ☐ they are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or
 - (d) ☐ they present additional claims without canceling a corresponding number of finally rejected claims.

NOTE: _____.

3. ☐ Applicant's reply has overcome the following rejection(s): _____.
4. ☐ Newly proposed or amended claim(s) _____ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).
5. ☒ The a) ☐ affidavit, b) ☐ exhibit, or c) ☒ request for reconsideration has been considered but does NOT place the application in condition for allowance because: See Continuation Sheet.
6. ☐ The affidavit or exhibit will NOT be considered because it is not directed SOLELY to issues which were newly raised by the Examiner in the final rejection.
7. ☒ For purposes of Appeal, the proposed amendment(s) a) ☐ will not be entered or b) ☒ will be entered and an explanation of how the new or amended claims would be rejected is provided below or appended.

The status of the claim(s) is (or will be) as follows:

Claim(s) allowed: 63-82 and 97-102.

Claim(s) objected to: 50-53, 90-92, 94-96, 104-106, 114-117 and 120-123.

Claim(s) rejected: 30-36, 49, 54-62, 83-89, 93, 103, 107, 113, 118 and 119.


Claim(s) withdrawn from consideration: _____.

8. ☐ The drawing correction filed on _____ is a) ☐ approved or b) ☐ disapproved by the Examiner.
9. ☐ Note the attached Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____.
10. ☐ Other: _____

Marsha D Banks-Harold

MARSHA D. BANKS-HAROLD
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600

Continuation of 5. does NOT place the application in condition for allowance because: after careful reconsideration, with respect to Yokio et al., 5,282,239, Examiner maintains that the "actual motion" of the mobile unit is independent of the motion of the transmitter. Hence the transmitter does not control the "actual motion" of the mobile unit, e.g., with in the elevator the mobile unit is free to move. Further, Applicant argues that "at least a component of the motion....will be due to the motion of the elevator. However, this limitation is not in the claims.


JOY K. CONTEE
PATENT EXAMINER
7/30/01

Interview Summary

09/401,584

Gavrilovich

Examiner

Art Unit

Joy K Contee

2686

All participants (applicant, applicant's representative, PTO personnel):

(1) Joy K Contee.

(3) _____.

(2) Mr. Charles Gavrilovich, Jr.

(4) _____.

Date of Interview: 09 February 2004.

Type: a) ☒ Telephonic b) ☐ Video Conference
c) ☐ Personal [copy given to: 1) ☐ applicant 2) ☐ applicant's representative]

Exhibit shown or demonstration conducted: d) ☐ Yes e) ☐ No.

If Yes, brief description: _____.

Claim(s) discussed: _____.

Identification of prior art discussed: _____.

Agreement with respect to the claims f) ☐ was reached. g) ☐ was not reached. h) ☒ N/A.

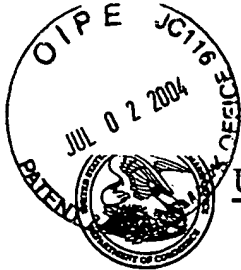
Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: Examiner informed Mr. Gavrilovich, Jr. that claims 89 and 93 did not contain the limitation "actual motion". Examiner informed Mr. Gavrilovich that a new nonfinal action or a notice of allowance would be forwarded shortly.

(A fuller description, if necessary, and a copy of the amendments which the examiner agreed would render the claims allowable, if available, must be attached. Also, where no copy of the amendments that would render the claims allowable is available, a summary thereof must be attached.)

THE FORMAL WRITTEN REPLY TO THE LAST OFFICE ACTION MUST INCLUDE THE SUBSTANCE OF THE INTERVIEW. (See MPEP Section 713.04). If a reply to the last Office action has already been filed, APPLICANT IS GIVEN ONE MONTH FROM THIS INTERVIEW DATE, OR THE MAILING DATE OF THIS INTERVIEW SUMMARY FORM, WHICHEVER IS LATER, TO FILE A STATEMENT OF THE SUBSTANCE OF THE INTERVIEW. See Summary of Record of Interview requirements on reverse side or on attached sheet.

Examiner Note: You must sign this form unless it is an Attachment to a signed Office action.

 7033088/149
2/9/04
Examiner's signature, if required



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/401,584	09/22/1999	CHARLES D. GAVRILOVICH	GAVRILOVICH-	4845

7590 11/12/2003

LAW OFFICE OF CHARLES D. GAVRILOVICH, JR.
985 PASEO LA CRESTA
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CHULA VISTA, CA 91910-6729

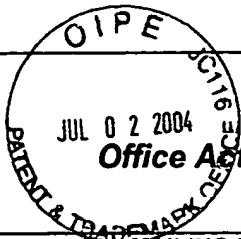
EXAMINER

CONTEE, JOY KIMBERLY

ART UNIT	PAPER NUMBER
2686	

DATE MAILED: 11/12/2003

Please find below and/or attached an Office communication concerning this application or proceeding.



Office Action Summary

Application No.

09/401,584

Applicant(s)

GAVRILOVICH, CHARLES D.

Examiner

Joy K Contee

Art Unit

2686

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 06 August 2003.
- 2a) ☒ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 30-36 and 49-123 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 63-82 and 97-102 is/are allowed.
- 6) ☒ Claim(s) 30-36, 49, 54-62, 83-89, 93, 103, 107, 113, 118 and 119 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. This is in response to the Applicant's amendments and arguments received August 6, 2003 in which claims 113-123 have been added. Claims 30-36 and 49-123 are currently pending.

Response to Arguments

2. Applicant's arguments filed August 6, 2003 have been fully considered but they are not persuasive. Regarding claims 30-36, 49,83-88 and 107-112, Examiner maintains the rejection applied by Examiner Gelin in the May 15, 2003 detailed office action.

With respect to Applicant's arguments against the rejections under 35 USC 112, Examiner asserts that it is not found in the background of the disclosure, reference to a numerical quantity or range associated with number of mobile users per square kilometers. Regardless of what is "well known", for example, Applicant argues that "the number of users per cell site to increase the bandwidth per channel" is well known, a exact number is not inherent and can not be assumed from specification.

In light of the amendments to claims 30-36 and 49, filed August 6, 2003, Examiner can not find a clear distinction between an "actual motion" and the "anticipated motion" of the mobile unit. If the "anticipated motion" is along the predetermined path, what is the "actual motion"? Is it not the user carrying the mobile unit around within the space of the elevator or outside of the elevator in Yokoi? Examiner asserts that this "carrying" movement or motion of the mobile unit is independent of that motion.

Regarding claims 55 and 56 Examiner maintains that Charas teaches a base station having a frequency converter that transmits and receives RF information in the 1500 MHZ which is greater than 300 MHZ (col. 4, lines 6-11, col. 5, lines 24-34).

Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to implement the technique of Charas within the system of Yokoi in order to transmit and receive the high RF signal to a communication unit inside a vehicle, and synchronize the output frequencies of the high RF signal and low RF signal and avoid interference if two or more vehicles are close to each other and are receiving signals from the same base station.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 83-88 and 107-112 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claims contain subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

After reading the specification, the Examiner does not find a specific passage that corresponds to limitations of claims 83-85. For instance, claim 83 recites a communication system adapted to simultaneously provide a communication channel

having a data rate of at least 2 megabits per second to each of a plurality of mobile units traveling at a speed greater than 45 kilometers per hour, wherein the density of mobile units to geographic area is at least 6,500 mobile users per square kilometer. This limitation is nowhere to be found in the specification.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless--

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 30-36, and 49, 54, 58, 61, 62, 89, 93, and 103, 113-123 are rejected under 35 U.S.C. 102(b) as being anticipated by Yokoi et al (US 5,282,239).

Regarding claims 30, 113 and 119, Yokoi teaches a transmitter and (method of) moving communication cell (i.e., within moving base station 10 or 20) adapted to transmit a signal to a mobile unit (i.e., portable telephone 2 or 19) while the transmitter and moving communication cell (i.e., moving base station 10 or 20) has a motion relative to Earth along a predetermined path (i.e., moving base station 10 or 20 is coupled to an elevator, which has the capability to move relative to earth) and in accordance with an anticipated motion of the mobile unit (i.e., a person carries the portable telephone, and moves relative to the moving base station and the earth), wherein the motion of the transmitter and moving communication cell is controlled (i.e.,

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typically a person presses a floor number for the elevator to move, then the portable telephone in communication via the moving base hands off the call to another base station) independently to the anticipated motion of the mobile unit (see, col. 4, lines 37-64, col. 5, line 38-67, col. 7, lines 11-63, and col. 8, lines 5).

"With respect to claim 89, the claim is rejected as being anticipated by Yokoi for the same reason as claim 30 above."

Regarding claims 31, 114 and 120, Yokoi teaches wherein the predetermined path (i.e., parallel track is the path) has a contour corresponding to a roadway contour and the anticipated motion of the mobile unit is on the roadway (col. 8, lines 24-34).

Regarding claim 32, Yokoi teaches a wherein the transmitter is further adapted to travel on a conveyor device along the predetermined path (col. 7, lines 21-38, col. 8, lines 24-34).

Regarding claim 33, Yokoi teaches wherein the signal corresponds to a received signal received at the transmitter from a fixed radio port (i.e., sending a call via the moving base, col. 4, lines 6, lines 46-55).

Regarding claim 34, Yokoi teaches a receiver (i.e., within moving base station 10 or 20) adapted to receive a signal to a mobile unit (i.e., portable telephone 2 or 19) while the receiver (i.e., moving base station 10 or 20) has a motion relative to Earth along a predetermined path (i.e., moving base station 10 or 20 is coupled to an elevator, which has the capability to move relative to earth) and in accordance with an anticipated motion of the mobile unit (i.e., a person carries the portable telephone, and moves relative to the moving base station and the earth), wherein the motion of the receiver is

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controlled (i.e., typically a person presses a floor number for the elevator to move, then the portable telephone in communication via the moving base hands off the call to another base station) independently to the anticipated motion of the mobile unit (see, col. 4, lines 37-64, col. 5, line 38-67, col. 7, lines 11-63, and col. 8, lines 5).

"With respect to claim 93, the claim is rejected as being anticipated by Yokoi for the same reason as claim 34 above."

Regarding claim 35, Yokoi teaches wherein the predetermined path (i.e., parallel track is the path) has a contour corresponding to a roadway contour and the anticipated motion of the mobile unit is on the roadway (col. 8, lines 24-34).

Regarding claim 36, Yokoi teaches a wherein the transmitter is further adapted to travel on a conveyor device along the predetermined path (col. 7, lines 21-38, col. 8, lines 24-34).

Regarding claim 49, Yokoi teaches a movable base station (10, 20) adapted to establish a communication link between a fixed port (4) and mobile unit (2) while the movable base station has a motion relative to Earth along a predetermined path (i.e., moving base station 10 or 20 is coupled to an elevator, which has the capability to move relative to earth) and in accordance with an anticipated motion of the mobile unit (i.e., a person carries the portable telephone, and moves relative to the moving base station and the earth), wherein the motion of the movable base station is controlled independently to the anticipated motion of the mobile unit (see, col. 4, lines 37-64, col. 5, line 38-67, col. 7, lines 11-63, and col. 8, lines 5).

Regarding claims 54, 115-118, 121-123, Yokoi teaches a movable base station (or moving communication cell) (10 or 20) adapted to have a motion relative to a fixed port (fixed base or central switch) along a predetermined path and in accordance with an anticipated motion of a mobile unit (col. 4, lines 37-59), comprising: a first radio interface (or gateway) adapted to establish a first communication link between the movable base station and the mobile unit (i.e., moving base in communication with the portable telephone 2, col. 4, lines 44-47); and a second radio interface adapted to establish a second communication link between the movable base station and the fixed port (typically user of the mobile can move the base station by the press of a button in the conveyance, and col. 4, lines 40-44), wherein the motion of the movable base station is independently controllable to the motion of the mobile unit (see, col. 4, lines 37-64, col. 5, line 38-67, col. 7, lines 11-63, and col. 8, lines 5).

Regarding claim 58, Yokoi teaches wherein the frequency band is a millimeter wave frequency band (i.e., low frequency band, col. 3, lines 61-63, col. 4, lines 32-33).

Regarding claim 61, Yokoi teaches a wherein the transmitter is further adapted to travel on a conveyor device along the predetermined path (col. 7, lines 21-38, col. 8, lines 24-34).

Regarding claim 62, Yokoi teaches wherein the signal corresponds to a received signal received at the transmitter from a fixed radio port (i.e., sending a call via the moving base, col. 4, lines 6, lines 46-55).

Regarding claim 103, Yokoi teaches a method of providing a communication connection between a communication network and a plurality of mobile units (such as

portable telephone 2) having a motion relative to a plurality of fixed ports (such as fixed base 4), wherein the plurality of fixed ports are communicatively coupled to the communication network, the method comprising the steps of: establishing a first communication link between the plurality of mobile units and a first fixed port of the plurality of fixed ports through a movable base station having a motion in accordance with the motion of the mobile units (col. 4, lines 37-59); and simultaneously handing off the plurality of mobile units to a second fixed port of the plurality fixed ports (col. 7, line 21 to col. 8, line 15).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 55, 56, 75, 76, 78, 81, and 82 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yokoi in view of Charas et al. (US 5,404,570).

Regarding claim 55, Yokoi teaches all the limitations above except wherein the first communication link and the second communication are established within a frequency band having a lower limit greater than 300 megahertz.

However, the preceding limitation is known in the art of communications. Charas teaches a base station having a frequency converter that transmits and receives RF information in the 1500 MHZ which is greater than 300 MHZ (col. 4, lines 6-11, col. 5, lines 24-34). Therefore, it would have been obvious to one of ordinary skill in the art, at

the time the invention was made, to implement the technique of Charas within the system of Yokoi in order to transmit and receive the high RF signal to a communication unit inside a vehicle, and synchronize the output frequencies of the high RF signal and low RF signal and avoid interference if two or more vehicles are close to each other and are receiving signals from the same base station.

Regarding claim 56, Yokoi in view of Charas teaches all the limitations above. Charas further teaches wherein the frequency band has a lower limit of 300 megahertz (col. 3, lines 61-63).

Regarding claims 75, 81, and 82, Yokoi in view of Charas teaches all the limitations above. Yokoi further teaches a processor adapted to establish a communication link between the plurality of mobile units and at least one of the plurality of fixed radio ports based on a plurality of signal quality indicators, each of the signal quality indicators corresponding to each of a plurality of transmitted signals transmitted from the plurality of fixed radio ports (col. 5, lines 47-62, col. 7, lines 21-38).

Regarding claim 76, Yokoi in view of Charas teaches all the limitations above. Charas further teaches wherein the frequency band has a lower limit of 300 megahertz (col. 3, lines 61-63).

Regarding claim 78, Yokoi teaches wherein the frequency band is a millimeter wave frequency band (i.e., low frequency band, col. 3, lines 61-63, col. 4, lines 32-33).

9. Claims 57, 77 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yokoi in view of Ishikawa.

Regarding claims 57, 77, Yokoi teaches all the limitations except wherein the frequency band is an optical frequency band.

However, the preceding limitation is known in the art of communications. In the same field of endeavor, Ishikawa teaches an optical wavelength multiplex transmission method and optical dispersion compensation method (col. 7, lines 18-44). Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to include operation using optical frequency band for the purpose of using signal light waves of some sort in order to transmit from the transmitter to the repeater and to the receiver in a situation where a line of sight communication path is available.

10. Claims 59-60, 79, 80 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yokoi in view of Barkats.

Regarding claims 59, 60, 79, and 80, Yokoi teaches all the limitations except wherein the frequency band comprises a frequency spectrum from 50 gigahertz to 70 gigahertz (i.e., an oxygen absorption frequency band).

In a similar field of endeavor, Barkats teaches a satellite (i.e., repeaters) communication using a range of available frequencies from 30 GHZ to 50 GHZ (col. 4, lines 15-20).

Inherently a grater range would be available, e.g., 50 GHZ to 70 GHZ. Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to have modified Yokoi to include a higher frequency for communication for the purpose of utilizing a range in which there is not a shortage.

Allowable Subject Matter

11. Claims 63-74, and 97-102 are allowed.
12. Claims 50-53, 90-92, 94-96, 104-106 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

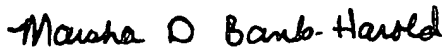
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joy Contee whose telephone number is 703.308.0149. The examiner can normally be reached on 5:30 a.m. to 2:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marsha Banks-Harold can be reached on (703) 305-4379. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and (703) 872-9306 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 306-0377.


Joy Contee
November 5, 2003


MARSHA D. BANKS-HAROLD
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600